What is claimed is:

1. A method for driving a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the method comprising:

a different potential difference continuous application step of continuously applying a potential difference, different from that in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate.

2. A liquid crystal device having a driving circuit to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the liquid crystal device comprising:

different potential difference continuous application means for continuously applying a potential difference, different from that in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate.

3. A method for driving a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the method comprising:

a primary potential difference application step of applying a primary potential difference, different from that in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate;

a secondary potential difference application step of applying a secondary potential difference smaller than the primary potential difference; and

a repeat control step of alternately executing the primary potential difference application step and the secondary potential difference application step at least one time each during a repeated period, the length of a primary potential difference application period being in the range of from 50% or more to 95% or less of the length of one repeated period.

4. The method for driving a liquid crystal device according to claim 3, which comprises a period switching control step of controlling the time required for switching of the potential difference to be 30% or less of a single period of one repeated period when the primary potential difference and the secondary potential difference are alternately applied in the repeat control step.

5. A method for driving a liquid crystal device, wherein the different potential difference continuous application step according to claim 1 and the primary potential difference application step according to claim 3 are a common electrode potential variation using different potential difference continuous application step and a common electrode potential variation using primary potential difference continuous application step, respectively, wherein storage capacities connected to the pixel electrodes are formed

between the pixel electrodes and common electrodes having potentials common to all the pixel electrodes, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between the thin-film transistors parasitic gate lines and the pixel electrodes, potential variation of the pixel electrodes accompanied by the potential variation of the common electrodes is used to obtain the potential difference.

6. The method for driving a liquid crystal device according to claim 5, wherein the common electrode potential variation using different potential difference continuous application step and the common electrode potential variation using primary potential difference continuous application step are each a step of making voltage applied to the common electrodes equal to voltage used for gate signals.

7. A method for driving a liquid crystal device, wherein the different potential difference continuous application step according to claim 1 and the primary potential difference application step according to claim 3 are a gate line potential variation using different potential difference continuous application step and a gate line potential variation using primary potential difference continuous application step, respectively, wherein storage capacities connected to the pixel electrodes are formed between the pixel electrodes and the gate lines one line front or behind, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between the thin-film transistors parasitic gate lines and the pixel electrodes, potential variation of the pixel electrodes accompanied by the potential variation of the gate lines one line front or behind is used to obtain the potential difference.

8. A driving circuit of a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the driving circuit comprising:

primary potential difference application means for applying a primary potential difference, different from that in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate;

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference; and

repeat control means of alternately executing the primary potential difference application step and the secondary potential difference application step at least one time each during a repeated period, the length of a primary potential difference application period being in the range of from 50% or more to 95% or less of the length of one repeated period.

9. The driving circuit of the liquid crystal device according to claim 8, which comprises period switching control means for controlling the time required for switching between the potential difference in the primary potential difference application period and the potential difference in the secondary potential difference application period to be 30% or less of a single period of one repeated period when the primary potential difference and the secondary potential difference are alternately applied in the repeat control means.

10. A driving circuit of a liquid crystal device, wherein the different potential difference continuous application means according to claim 2 and the primary potential difference application means according to claim 8 are a common electrode potential variation using different potential difference continuous application means and a common electrode potential variation using primary potential difference continuous application means, respectively, wherein storage capacities connected to the pixel electrodes are formed between the pixel electrodes and common electrodes having potentials common to all the pixel electrodes, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between the thin-film transistors parasitic gate lines and the pixel electrodes, potential variation of the pixel electrodes accompanied by the potential variation of the common electrodes is used to obtain the potential difference.

11. The driving circuit of the liquid crystal device according to claim 10, wherein the common electrode potential variation using different potential difference continuous application means and the common electrode potential variation using primary potential difference continuous application means are each means for making voltage applied to the common electrodes equal to voltage used for gate signals.

12. A driving circuit of a liquid crystal device, wherein the different potential difference continuous application means according to claim 2 and the primary potential difference application means according to claim 8 are a gate line potential variation using different potential difference continuous application means and a gate line potential variation using

primary potential difference continuous application means, respectively, wherein storage capacities connected to the pixel electrodes are formed between the pixel electrodes and the gate lines one line front or behind, so that, by means of a ratio between pixel electrode capacities including the storage capacities and capacities between the thin-film transistors parasitic gate lines and the pixel electrodes, potential variation of the pixel electrodes accompanied by the potential variation of the gate lines one line front or behind is used to obtain the potential difference.

13. A method for driving a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the method comprising:

a primary potential difference application step of applying a primary potential difference, different from that in a normal image display period, between the pixel electrode and the opposing electrode;

a secondary potential difference application step of applying a secondary potential difference smaller than the primary potential difference;

a repeat control step of alternately executing the primary potential difference application step and the secondary potential difference application step at least one time each; and

a charging sub-step of applying to source lines a potential in which a pixel electrode potential variation is reflected in the opposing electrode potential, the pixel electrode potential variation being induced by the

potential variation of the gate lines when the pixel transistor is switched to OFF from ON in the secondary potential difference application step, to charge the pixel electrodes.

14. The method for driving the liquid crystal device according to claim 13, wherein the secondary potential difference application step allows the secondary potential difference to be set to be within the range of ±1 V.

15. The method for driving the liquid crystal device according to claim 13, wherein the secondary potential difference application step allows a potential equal to that of the opposing electrode to be applied to the source lines when the pixel transistors are OFF in the period in which the secondary potential difference is applied.

16. The method for driving the liquid crystal device according to claim 13, wherein the charging sub-step is performed at least once in an initial stage of a driving period for the transition of the liquid crystal layer to the bend configuration.

17. The method for driving the liquid crystal device according to claim 13, wherein the charging sub-step is performed at least once in an initial stage of a driving period for the transition of the liquid crystal layer to the bend configuration, in the initial stage of which the primary potential difference application step and the secondary potential difference application step are initiated.

18. The method for driving the liquid crystal device according to claim 13, which comprises a gate line off-voltage direct current holding step of holding an off-voltage of the gate line in direct current.

19. A driving circuit of a liquid crystal device to cause transition of a splay

configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the driving circuit comprising:

primary potential difference application means for applying a primary potential difference, different from that in a normal image display period, between the pixel electrode and the opposing electrode;

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference;

repeat control means for alternately operating the primary potential difference application means and the secondary potential difference application means at least one time each; and

charging sub-means for applying to source lines a potential in which a pixel electrode potential variation is reflected in the opposing electrode potential, the pixel electrode potential variation being induced by the potential variation of the gate lines when the pixel transistor is switched to OFF from ON in the secondary potential difference application period, to charge the pixel electrodes.

20. The driving circuit of the liquid crystal device according to claim 19, wherein the secondary potential difference application means allows the secondary potential difference to be set to be within the range of ± 1 V.

21. The driving circuit of the liquid crystal device according to claim 19, wherein the secondary potential difference application means allows a potential equal to that of the opposing electrode to be applied to the source

lines when the pixel transistors are OFF in the period in which the secondary potential difference is applied.

22. The driving circuit of the liquid crystal device according to claim 19, wherein the charging sub-means is operated at least once in an initial stage of a driving period for the transition of the liquid crystal layer to the bend configuration.

23. The driving circuit of the liquid crystal device according to claim 19, wherein the charging sub-means is operated at least once in an initial stage of a driving period for the transition of the liquid crystal layer to the bend configuration, in the initial stage of which the primary potential difference application means and the secondary potential difference application means are initiated.

24. The driving circuit of the liquid crystal device according to claim 19, which comprises gate line off-voltage direct current holding means for holding an off-voltage of the gate line in direct current.

25. A method for driving a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the method comprising:

a primary potential difference application step of applying a primary potential difference, different from that in a normal image display period, between the pixel electrode and the opposing electrode;

a secondary potential difference application step of applying a secondary potential difference smaller than the primary potential

difference;

a repeat control step of alternately executing the primary potential difference application step and the secondary potential difference application step at least one time each; and

a charging sub-step of applying to source lines a potential in which a pixel electrode potential variation is reflected in the opposing electrode potential, the pixel electrode potential variation being induced by the potential variation of the gate lines when the pixel transistor is switched to OFF from ON in the secondary potential difference application step, to charge the pixel electrodes,

wherein the potential of the source lines is modulated to a potential different from that in a period in which the secondary potential difference is applied so that the primary potential difference can be further increased in a period in which the primary potential difference is applied.

26. The method for driving the liquid crystal device according to claim 25, wherein the secondary potential difference application step allows the secondary potential difference to be set to be within the range of ±1 V.

27. The method for driving the liquid crystal device according to claim 25, wherein the secondary potential difference application step allows a potential equal to that of the opposing electrode to be applied to the source lines when the pixel transistors are OFF in the period in which the secondary potential difference is applied.

28. The method for driving the liquid crystal device according to claim 25, wherein the charging sub-step is performed at least once in an initial stage of a driving period for the transition of the liquid crystal layer to the bend

configuration.

29. The method for driving the liquid crystal device according to claim 25, wherein the charging sub-step is performed at least once in an initial stage of a driving period for the transition of the liquid crystal layer to the bend configuration, in the initial stage of which the primary potential difference application step and the secondary potential difference application step are initiated.

30. The method for driving the liquid crystal device according to claim 25, which comprises a gate line off-voltage direct current holding step of holding an off-voltage of the gate line in direct current.

31. A driving circuit of a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the driving circuit comprising:

primary potential difference application means for applying a primary potential difference, different from that in a normal image display period, between the pixel electrode and the opposing electrode;

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference;

repeat control means for alternately operating the primary potential difference application means and the secondary potential difference application means at least one time each; and

charging sub-means of applying to source lines a potential in which a

pixel electrode potential variation is reflected in the opposing electrode potential, the pixel electrode potential variation being induced by the potential variation of the gate lines when the pixel transistor is switched to OFF from ON in the secondary potential difference application period, to charge the pixel electrodes,

wherein the potential of the source lines is modulated to a potential different from that in a period in which the secondary potential difference is applied so that the primary potential difference can be further increased in a period in which the primary potential difference is applied.

32. The driving circuit of the liquid crystal device according to claim 31, wherein the secondary potential difference application means allows the secondary potential difference to be set to be within the range of ±1 V.

33. The driving circuit of the liquid crystal device according to claim 31, wherein the secondary potential difference application means allows a potential equal to that of the opposing electrode to be applied to the source lines when the pixel transistors are OFF in the period in which the secondary potential difference is applied.

34. The driving circuit of the liquid crystal device according to claim 31, wherein the charging sub-means is operated at least once in an initial stage of a driving period for the transition of the liquid crystal layer to the bend configuration.

35. The driving circuit of the liquid crystal device according to claim 31, wherein the charging sub-means is operated at least once in an initial stage of a driving period for the transition of the liquid crystal layer to the bend configuration, in the initial stage of which the primary potential difference

application means and the secondary potential difference application means are initiated.

36. The driving circuit of the liquid crystal device according to claim 31, which comprises gate line off-voltage direct current holding means for holding an off-voltage of the gate line in direct current.

37. A method for driving a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the method comprising:

a primary potential difference application step of applying a primary potential difference, different from that in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate; and

a secondary potential difference application step of applying a secondary potential difference smaller than the primary potential difference;

a repeat control step of alternately controlling the primary potential difference application step and the secondary potential difference application step at least one time each,

wherein in the repeat control step, the secondary potential difference application step is performed first.

38. A driving circuit of a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form

and a second substrate on which an opposing electrode is formed, to a bend configuration, the driving circuit comprising:

primary potential difference application means for applying a primary potential difference, different from that in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate;

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference; and

repeat control means for allowing the secondary potential difference application means to operate first and allowing the primary potential difference application means and the secondary potential difference application means to alternately operate at least one time each.

39. A method for driving a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the method comprising:

a primary potential difference application step of applying a primary potential difference, different from that in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate; and

a secondary potential difference application step of applying a secondary potential difference smaller than the primary potential difference;

a repeat control step of alternately executing the primary potential difference application step and the secondary potential difference application step at least one time each; and

a high-potential-difference-for-transition application step of applying a larger potential difference, of the potential differences applied to the liquid crystal layer in the normal image information display period, to the liquid crystal layer at least one field during a period from after completion of the alternate execution of the primary potential difference application step and the secondary potential difference application step at least one time each until the shift to the normal image information display period is achieved.

40. A driving circuit of a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the driving circuit comprising:

primary potential difference application means for applying a primary potential difference, different from that in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate; and

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference;

repeat control step of alternately controlling the primary potential difference application means and the secondary potential difference application means at least one time each, and

high-potential-difference-for-transition application means for applying a larger potential difference, of the potential differences applied to the liquid crystal layer in the normal image information display period, to the liquid crystal layer at least one field during a period from after completion of the alternate executing of the primary potential difference application step and the secondary potential difference application step at least one time each until the shift to the normal image information display period is achieved.

41. A method for driving a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the method comprising:

a primary potential difference application step of applying a primary potential difference, different from that in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate;

a secondary potential difference application step of applying a secondary potential difference smaller than the primary potential difference;

a repeat control step of allowing the secondary potential difference application step to be initiated first, and alternately operating the primary potential difference application step and the secondary potential difference application step at least one time each, and

an activation controlling step of controlling activation of parts of the liquid crystal device in advance, to keep the aligned state of the liquid

crystal layer from being disarranged to an excessive degree after power is turned on.

42. A driving circuit of a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors and pixel electrodes are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the driving circuit comprising:

primary potential difference application means for applying a primary potential difference, different from that in a normal image display period, between the pixel electrode on the first substrate and the opposing electrode on the second substrate;

secondary potential difference application means for applying a secondary potential difference smaller than the primary potential difference;

repeat control means for allowing the secondary potential difference application step to be initiated first, and alternately operating the primary potential difference application means and the secondary potential difference application means at least one time each, and

activation controlling means for controlling activation of parts of the liquid crystal device in advance, to keep the aligned state of the liquid crystal layer from being disarranged to an excessive degree after power is turned on.

43. A method for driving a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors, pixel electrodes, gate lines, and

others are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the method comprising:

a high potential difference application step of providing a period in which a larger potential difference than in a normal image display period is applied between the pixel electrode and the opposing electrode, while scanning the gate lines by using pulsed signals.

44. A driving circuit of a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors, pixel electrodes, gate lines, and others are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the driving circuit comprising:

high potential difference application means for providing a period in which a larger potential difference than in a normal image display period is applied between the pixel electrode and the opposing electrode, while scanning the gate lines by using pulsed signals.

45. A method for driving a liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors, pixel electrodes, and others are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration, the method comprising:

a high electric field applied activation step of applying an electric field, higher than that applied to the liquid crystal layer in the normal image display period, between the gate line on the first substrate and the opposing electrode on the second substrate.

46. A liquid crystal device to cause transition of a splay configuration of a liquid crystal layer, provided between a first substrate on which thin film transistors, pixel electrodes, gate lines and others are formed in a matrix form and a second substrate on which an opposing electrode is formed, to a bend configuration,

wherein there is a period in which an electric field higher than that applied to the liquid crystal layer in the normal image display period is applied between the gate line on the first substrate and the opposing electrode on the second substrate.

47. The liquid crystal device according to claim 46, wherein the gate line on the first substrate is a strong electric field applied gate line which is formed to have an insulating layer reduced in thickness at a portion where no other metal layer or no semiconductor layer is present between the gate line and the liquid crystal layer.

48. The liquid crystal device according to claim 46, wherein the insulating layer between the gate line on the first substrate and the liquid crystal layer is a high specific inductive capacity insulating layer made of material using material of high specific inductive capacity.

49. The liquid crystal device according to claim 46, wherein the gate line on the first substrate is an at-specific-part-thickened gate line which is formed to have an increased metal thickness at a portion where no other metal layer or no semiconductor layer is present between the gate line and the liquid crystal layer.

50. The liquid crystal device according to claim 46, wherein the gate line on the first substrate is a partly contacted gate line in which a source line

forming metal is laminated on a gate line forming metal in electric contact therewith at a portion where no other metal layer or no semiconductor layer is present between the gate line and the liquid crystal layer.

51. The liquid crystal device according to claim 46, wherein the gate line on the first substrate is a partly contacted gate line in which a source line forming metal is laminated on a gate line forming metal not in electric contact therewith at a portion where no other metal layer or no semiconductor layer is present between the gate line and the liquid crystal layer.

52. The liquid crystal device according to claim 46, wherein the opposing electrode on the second substrate is a divided opposing electrode that is divided into a part confronting the gate line on the first substrate and the remaining part.

53. The liquid crystal device according to claim 46, wherein the opposing electrode on the second substrate is an at-confronting-portion thickened opposing electrode that is formed to be larger in thickness at a portion confronting the gate line on the first substrate than at a non-confronting portion.

54. The liquid crystal device according to claim 46, wherein the second substrate has a color filter formed of resin laminated thereon at its portion confronting the gate line on the first substrate.

55. The liquid crystal device according to claim 54, wherein the color filter formed of resin laminated on the second substrate at its portion confronting the gate line on the first substrate is a color filter formed by a plurality of different color filters being laminated at their peripheries.

56. The liquid crystal device according to claim 46, wherein a pillar-shaped spacer is formed on the second substrate at its portion confronting the gate line on the first substrate to confront the gate line across the liquid crystal layer.

57. The liquid crystal device according to claim 56, wherein the pillar-shaped spacer has pillar-shaped spacer potential application means which is conductive at least at a liquid crystal layer side thereof and applies a potential equivalent to the gate line to the pillar-shaped spacer at a startup of the liquid crystal device.

ADD A1